

Burning Water

Density Demonstrations



Introduction

There are many reasons to do this demonstration—density, combustion, miscible and immiscible, polar and nonpolar, observation, and it fun to do!

Concepts

- Density
- Combustion

Materials

Hexane, C_6H_{14} , 2 mL

Erlenmeyer flasks, 1000-mL, 2

Water, 1000 mL

Safety Precautions

Wear chemical splash goggles, chemical-resistant gloves, and a chemical-resistant apron. Please consult current Material Safety Data Sheets for additional safety, handling, and disposal information.

Preparation

In a dry 1000-mL Erlenmeyer flask, add 2 mL of hexane.

Procedure

1. To help in selling the surprise, have an empty Erlenmeyer flask in your hand as the students are walking into the room. As the bell rings and students take their seats, quickly switch to the flask containing the 2 mL of hexane.
2. Make a statement about problems with the tap water. Fill the flask to just below the lip with tap water, don't let the flask overflow and lose the hexane.
3. Light the flask. Put the flask on the table. Let the students make observations and figure out what is happening.

Disposal

Let all the hexane in the flask completely burn off. Please consult your current Flinn Scientific Catalog/Reference Manual for general guidelines and specific procedures governing the disposal of laboratory wastes.

Tip

- You can use this demonstration throughout the year if you leave the explanation up to the students. Let them wonder all year.

Discussion

Water, of course, does not burn. The students should deduce that there is something other than water burning, that it is not a volatile solution of alcohol (they saw that 1000 mL of water was added), that it is an immiscible liquid, less dense than water, and is flammable.

Connecting to the National Standards

This laboratory activity relates to the following National Science Education Standards (1996):

Unifying Concepts and Processes: Grades K–12

Systems, order, and organization
Evidence, models, and explanation

Content Standards: Grades 5–8

Content Standard B: Physical Science, properties and changes of properties in matter

Content Standards: Grades 9–12

Content Standard B: Physical Science, structure and properties of matter

Flinn Scientific—Teaching Chemistry™ eLearning Video Series

A video of the *Burning Water* activity, presented by Lee Marek, is available in *Density Demonstrations*, part of the Flinn Scientific—Teaching Chemistry eLearning Video Series.

Materials for *Burning Water* are available from Flinn Scientific, Inc.

Catalog No.	Description
H0046	Hexanes, 100 mL

Consult your *Flinn Scientific Catalog/Reference Manual* for current prices.